

**PREVALENCE OF HERPES SIMPLEX VIRUS (HSV-1&2) IN  
CULTURE NEGATIVE SUPPURATIVE KERATITIS USING  
POLYMERASE CHAIN REACTION (PCR) – A PILOT STUDY**

**ABSTRACT**

**Background:**

Suppurative keratitis is a major cause of corneal blindness in developing countries most of which are fungal, bacterial or protozoan. The microbial culture positivity in suppurative keratitis is only 35-50%. The viral contribution in the etiology of the culture negative suppurative keratitis is not very well known in literature. The low positivity of microbial culture could be due to atypical presentations of viral keratitis mimicking suppurative keratitis. This study was done to find out the Herpetic etiology and its prevalence in culture negative suppurative keratitis.

**Purpose:**

Is there a herpetic etiology in culture negative suppurative keratitis? If so what is the prevalence of HSV 1 & 2?

Is there a reduction in the healing time of culture negative suppurative keratitis that are tested positive for Herpes, after being initiating antiviral therapy.

## **Methods:**

**Study design:** Prospective observational pilot study.

A total of 71 patients who presented with suppurative keratitis were subjected to corneal scraping to look for the presence of bacteria and fungus. The corneal scrapings of only the culture and smear negative cases were subjected to qualitative polymerase chain reaction to look for the presence of HSV 1 & 2. Patients who were positive for HSV were started on topical and oral acyclovir and steroid drops. The prevalence of herpes in culture negative corneal ulcers and the time taken for complete healing of the ulcer were calculated.

## **Results:**

Of the 71 patients with suppurative keratitis, 43 were culture positive with bacterial, fungal and protozoan etiology in 26%, 72% and 2 % respectively and the remaining 28 were culture negative. Three of the 28 culture negatives were positive for HSV 1 on PCR. The prevalence of HSV 1 in culture negative suppurative keratitis using PCR was 10.7% (95% CI 2.3% – 28.2%) in our study. We also identified certain associations that would predict possible viral etiology. Past history of red eye ( $p = 0.009$ ), corneal ulcers (0.006) and past history of antiviral intake ( $p = 0.001$ ) showed significant predictors of viral etiology. Culture negative corneal ulcers with endothelial involvement though

not significant ( $p = 0.630$ ) raised a suspicion of viral etiology but presence of a corneal scar had a higher association ( $p = 0.001$ ).

The average healing time of the corneal ulcers that were HSV positive was 52 days, which was quite similar to the reported rates in literature.

### **Conclusions:**

Viral keratitis can present as suppurative keratitis. Certain factors like past history of red eyes, corneal ulcers and antiviral use, presence of corneal scar and endothelial involvement had a higher prediction for HSV positivity. A prevalence of 10.7% in our pilot study needs further exploration with a higher sample size. There are still 89.3% of culture negatives that did not show viral etiology. This group may need further investigation with PCR using pan bacterial and pan fungal primers.